ISSN (print) 0093-4666 © 2015. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/130.563

Volume 130, pp. 563–567 *April–June 2015*

Two new *Rosellinia* species from Southwest China

Qirui Li[1], Jichuan Kang[1]*, & Kevin D. Hyde[2]

[1]*The Engineering and Research Center for Southwest Bio-Pharmaceutical Resources of National Education Ministry of China, Guizhou University, Guiyang 550025, PR China*

[2]*Centre of Excellence in Fungal Research, and School of Science, Mae Fah Luang University, Chiang Rai 57100, Thailand*

*Correspondence to: *bcec.jckang@gzu.edu.cn*

Abstract— Two new species of *Rosellinia* from China are illustrated and described. *Rosellinia sigmoidea* differs from other species mainly in having a white entostroma and broadly rounded ascospores with sigmoid germ slits extending over half of the spore length. *Rosellinia camphorae* is unique because of its large ascus apical apparatus and ascospores with slimy sheaths. The herbarium and living culture are deposited in the Collection of Guizhou University (GZUC).

Key words— *Ascomycetes*, *Pezizomycotina*, taxonomy, *Xylariales*, *Xylariaceae*

Introduction

Rosellinia De Not. (*Xylariaceae*), proposed in 1844 with *R. aquila* (Fr.) De Not. as its type species, is an important cosmopolitan genus. Stromata of *Rosellinia* are usually uniperitheciate and embedded in a persistent or fugacious subiculum. The ascus apical apparatus is well developed, especially in species with large ascospores. The asexual morph of *Rosellinia* species can be assigned to *Dematophora* R. Hartig, *Geniculosporium* Chesters & Greenh., or *Nodulisporium* Preuss (Greenhalgh & Chesters 1968, Rogers & Malmgren 1977, Petrini 1992, Stadler et al. 2013, Maharachchikumbura et al. 2015). Conidia are observed in the subiculum, on immature perithecia or in culture (Petrini & Petrini 2012). According to Petrini (2003) and Petrini & Petrini (2005), ascospore morphology is the most stable morphological character to delineate species. Currently, 142 species are accepted by Petrini (2013). *Rosellinia* species have been found on wood, dicotyledonous plants, and (occasionally) monocotyledonous hosts (Martin 1967; Pande & Rao 1995; Petrini 1992, 2003; Petrini et al. 1989; Roger 1953, Rogers 1979). Many *Rosellinia* species cause plant disease (Whalley 1996).

Materials & methods

The fresh specimen was collected from Guizhou Province, China. Asci and ascospores were examined by light microscopy (BX41, Olympus). Material was mounted in water and Melzer's iodine reagent for examination. At least 20 propagules were measured to establish length and width ranges. Bubbles and spots have been removed from images.

Taxonomy

Rosellinia sigmoidea Q.R. Li, J.C. Kang, K.D. Hyde, **sp. nov.** Plate 1

MycoBank MB 810825

Differs from all other *Rosellinia* species by its white entostroma and its broadly rounded ascospores with a sigmoid germ slit extending over half the spore length.

Type: China, Guizhou Prov., Guiyang, on dead wood, March 2014, Qirui Li (**Holotype**, GZUH0105).

Etymology: The epithet refers to the sigmoid germ slit of ascospores.

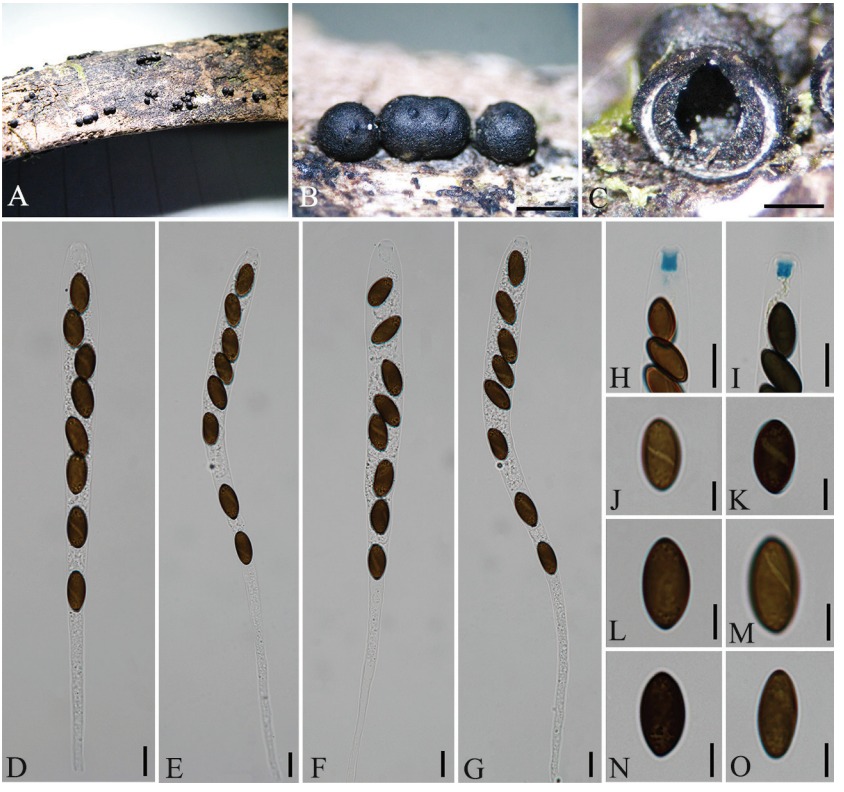

Plate 1. *Rosellinia sigmoidea* (holotype, GZUH0105). A, B. Stromata on the host. C. Section of stroma. D–G. Asci. H, I. Urn-shaped, J+, apical apparatus. J–O. Ascospores. Scale bars: B = 500 μm; C = 200 μm; D–I = 10 μm; J–O = 5 μm.

Saprobic on woody material. Sexual morph: Subiculum evanescent, brown to black, gradually disappearing, absent in mature material. Stromata black, 0.4–0.8 mm diam., subglobose to globose, with a central ostiole, solitary or densely crowded in small groups. Ectostroma ≤90 µm thick, black. Entostroma white. Ascomata 350–600 µm high, 310–600 µm wide, easy detached. Paraphyses persistent at maturity, hypha-like, tapering slightly towards the rounded apex. Asci 116.5–224.5 × 10–15 µm (mean = 157.1 × 12.1 µm, n = 20), 8-spored, unitunicate, cylindrical, pedicellate, apically rounded, with an amyloid apical apparatus. Apical apparatus barrel-shaped, 3–5 µm high (mean = 4.3 µm, n = 20), upper width 3.5–5 µm (mean = 3.9 µm, n = 20), lower width 2.5–4 µm (mean = 3 µm, n = 20). Ascospores 12.5–15 × 6–7.5 µm (mean = 13.6 × 6.9 µm, n = 30), uniseriate, ellipsoidal, ends rounded, dark brown to black at maturity, unicellular, smooth-walled, with sigmoid germ slit about the half spore length, lacking sheath. Asexual morph: undetermined.

Comments—*Rosellinia lakshadweepensis* A. Pande & V.G. Rao differs from *R. sigmoidea* in its ascospores being surrounded by a slimy sheath; and *R. cibodasae* L.E. Petrini differs by its larger ascospores (21.9 × 6.8 µm) (Petrini & Petrini 2005, Petrini 2013).

Rosellinia camphorae Q.R. Li, J.C. Kang, K.D. Hyde, **sp. nov.** Plate 2

MycoBank MB 810826

Differs from *Rosellinia procera* by its larger apical apparatus and its ascospores lacking caps at the ends and having a germ slit their entire length.

Type: China, Guizhou Prov., Guiyang, on deadwood of *Camphora* sp., March 2014, Qirui Li (**Holotype**, GZUH0113).

Etymology: The epithet refers to the host genus, *Camphora*.

Saprobic on woody material. Sexual morph: Subiculum evanescent, brown to black, gradually disappearing, absent in mature material. Stromata black, 0.8–1.2 mm high, 1–1.5 mm wide, subglobose to globose, with a central ostiole, solitary or densely crowded in small groups. Ectostroma up to 60 µm thick, black. Entostroma disappearing at maturity. Ascomata 500–1000 µm diam., 500–1000 µm high, black. Paraphyses persistent at maturity, hypha-like, tapering slightly toward the rounded apex. Asci 257–288 × 35–50 µm (265 × 41 µm, n = 20), 8-spored, unitunicate, clavate, short pedicellate, apically rounded, with a large amyloid apical apparatus. Apical apparatus barrel-shaped, 20–28.5 µm high, upper width 9–11 µm (9.5 µm, n = 20), lower width 14–16 µm (15.3 µm, n = 20). Ascospores 89–105 × 14.5–19 µm (99.5 × 17.2 µm, n = 20), bi-seriate, fusiform, ends rounded, dark brown to black at maturity, unicellular, smooth-walled, with a germ slit running the entire length of the spore, possessing a thin, slimy sheath. Asexual morph: undetermined.

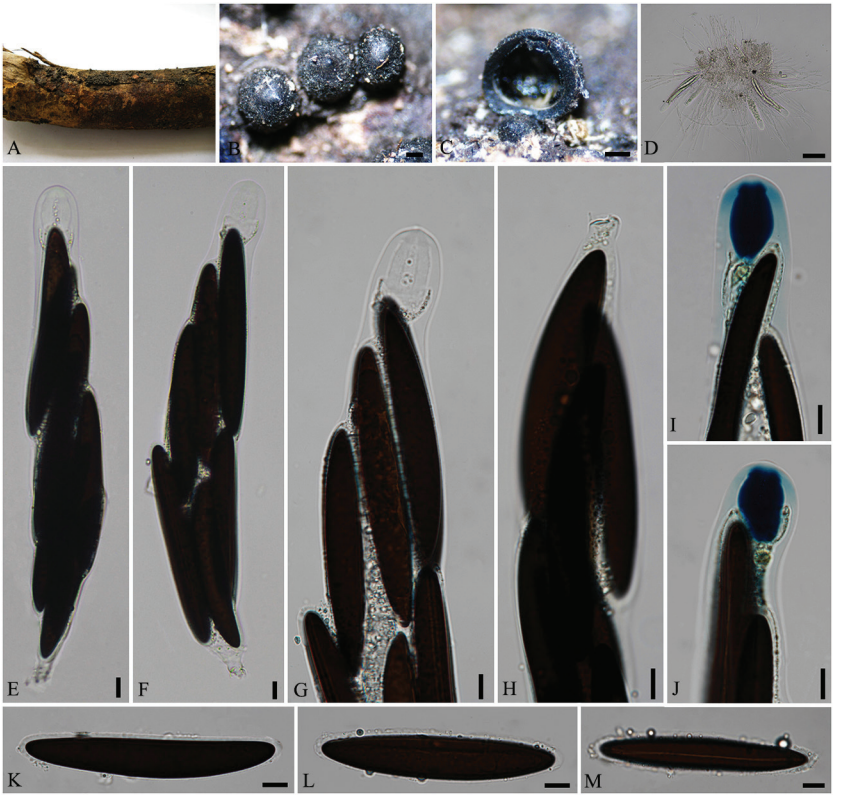

Plate 2. *Rosellinia camphorae* (holotype, GZUH0113). A, B. Stromata on the host. C. Section of stroma. D. Paraphyses. E–H. Asci. I, J. Urn-shaped, J+, apical apparatus. K–M. Ascospores. Scale bars: B, C = 500 μm; D = 50 μm; E–M = 10 μm.

Comments—*Rosellinia camphorae* is similar to *R. procera* Syd. & P. Syd., *R. megalosperma* Syd. & P. Syd., *R. formosana* Y.M. Ju & J.D. Rogers, *R. markhamiae* Sivan., and *R. saccasii* L.E. Petrini in ascospore size. However, *R. procera* differs by its smaller ascal apical apparatus (13–15 μm high, 8.5–10 μm broad) and its ascospores having caps at the ends, but lacking a germ slit (San Martín & Rogers 1995, Petrini & Petrini 2005, Petrini 2013); *R. megalosperma* differs by its ascospores having caps at the ends (Petrini & Petrini 2005); and *R. formosana*, *R. markhamiae* and *R. saccasii* differ by their smaller apical apparatus (Petrini 2013).

Acknowledgments

The authors are grateful for pre-submission comments and suggestions provided by Yucheng Dai and Xiuguo Zhang. This work was funded by the grants from the

National Natural Science Foundation of China (NSFC, No. 30870009), the international collaboration plan of Guizhou Province (No. G [2012]7006) and the innovation team construction for science and technology of Guizhou province (No. [2012]4007) from the Science and Technology Department of Guizhou province, China.

Literature cited

Greenhalgh GN, Chesters CGG. 1968. Conidiophore morphology in some British members of the *Xylariaceae*. Trans. Br. Mycol. Soc. 51: 57–82. http://dx.doi.org/10.1016/s0007-1536(68)80122-6

Maharachchikumbura SS, Hyde KD, Jones EBG, McKenzie EHC, Huang SK, Abdel-Wahab MA, Daranagama DA, Dayarathne M, D'souza MJ, Goonasekara ID, Hongsanan S, Jayawardena RS, Kirk PM, Konta S, Liu JK, Liu ZY, Norphanphoun C, Pang KL, Perera RH, Senanayake IC, Shang Q, Shenoy BD, Xiao YP, Bahkali AH, Kang JC, Somrothipol S, Suetrong S, Wen TC, Xu JC. 2015. Towards a natural classification and backbone tree for *Sordariomycetes*. Fungal Diversity 72: 199–301.

Martin P. 1967. Studies in the *Xylariaceae*: II. *Rosellinia* and the Primo–Cinerea section of *Hypoxylon*. J. South Afr. Bot. 33: 315–328.

Pande A, Rao G. 1995. The genus *Rosellinia* (*Sphaeriales*) form Peninsular India. Czech Mycology 48: 177–182.

Petrini LE. 1992. *Rosellinia* species of the temperate zones. Sydowia 44: 169–281.

Petrini LE. 2003. *Rosellinia* and related genera in New Zealand. New Zealand J. Bot. 41: 71–138. http://dx.doi.org/10.1080/0028825X.2003.9512833

Petrini LE. 2013. *Rosellinia*: a world monograph. Gebruder Borntraeger Verlagsbuchhandlung, Science Publishers.

Petrini LE, Petrini O. 2005. Morphological studies in *Rosellinia* (*Xylariaceae*): the first step towards a polyphasic taxonomy. Mycol. Res. 109(5): 569–580. http://dx.doi.org/10.1017/S0953756205002510

Petrini LE, Petrini O. 2012. *Rosellinia* species (*Xylariaceae*) from South and Central America. An annotated list. Kurtziana 37(1): 127–139.

Petrini LE, Petrini O, Francis SM. 1989. On *Rosellinia mammaeformis* and other related species. Sydowia 41: 257–276.

Roger L. 1953. Genre *Rosellinia* De Not. Phytopathologie des Pays Chauds 2: 1286–1297.

Rogers JD. 1979. The *Xylariaceae*: systematic, biological and evolutionary aspects. Mycologia 71: 1–42. http://dx.doi.org/10.2307/3759218

Rogers JD, Malmgren MM. 1977. Notes on *Rosellinia buxi* and conidial *Xylaria*. Can. J. Bot. 55: 1051–1055. http://dx.doi.org/10.1139/b77-123

San Martín GF, Rogers JD. 1995. *Rosellinia* and *Thamnomyces* in Mexico. Mycotaxon 53: 115–127.

Stadler M, Kuhnert E, Peršoh D, Fournier J. 2013. The *Xylariaceae* as model example for a unified nomenclature following the "One fungus-one name" (1F1N) concept. Mycology 4(1): 5–21

Whalley AJS. 1996. The xylariaceous way of life. Mycol. Res. 100: 897–922. http://dx.doi.org/10.1016/S0953-7562(96)80042-6